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AGEISM & DIGITAL TECHNOLOGY

Policy Measures to Address Ageism as a Barrier to Adoption and Use of Digital Technology



KEY MESSAGES

- Ageism is a key barrier that affects design, adoption and use of digital technology.
- Ageism in the context of digital technology occurs on the macro (design & policy)-, meso (social and organizational environment)- and micro (individual)-level. These three levels also interact and influence each other.
- A paradigm shift is needed in our understanding of: What digital technologies older persons want and need; older individuals' abilities to use digital technology; and how older persons are included and have a "say" in the design process of digital technology and related policies.
- In order to improve digital literacy and increase use and adoption of digital technology among older persons, policy interventions need to focus on eliminating stereotypes, prejudice and discrimination based on age, rather than accepting ageing per se as a barrier to the use and adoption of digital technology. Such interventions could include:
 - Tackling digital technology related ageism through awareness-raising and training.
 - Aiming for a partnership with older persons in the design and research process.
 - Empowering older persons in accessing and using digital technology.
 - Fostering inclusion of older persons in digital technology related policy contexts.

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INTRODUCTION

Equal opportunities to access and use digital technology¹ are at stake in an increasingly digitalized and ageing society. During the Covid-19 pandemic, the digital divide has become more apparent than ever, due to the importance of using digital technology for managing communication, everyday tasks, healthcare and social participation. In the past two decades, accumulating and disadvantaging factors that hinder equal access and technology adoption, such as level of education, socio-economic background and age, have been widely explored and addressed on policy agendas. As more and more services and everyday tasks move online, some older persons become increasingly disenfranchised and deprived from their right to full societal participation. Importantly, use of digital technology and digital literacy highly fluctuate between countries. For example, in 2020 within the European Union (EU-27), 61% of people between 65-74, used the internet in the last three months, with great variations across countries from 25% to 94% [1]. These numbers indicate on the one hand that the digital divide persists, on the other hand, there are positive developments and older people are increasingly engaging in digital technology.

Ageism and digital technology

Research evidence on technology adoption models posit that two major factors influence use and adoption of digital technology, namely, ease of use and perceived usefulness [2,3]. One of the most used models, the Unified Theory of Acceptance and Use of Technology (UTAUT), considers chronological age as a main barrier to access digital technology [3]. This notion has also become widespread in discourse on older persons' abilities and willingness to learn and use digital technology. Additionally, some recent models and reviews consider attitudes, anxiety and social influence as additional influencing factors [4,5]. Contrasting the unquestioned assumption of age as a barrier, latest evidence suggests that a possible barrier to access and adopt digital technology is not chronological age as such, but rather, ageism towards older persons and internalized (self) ageism [6,7]. Ageism is commonly defined as the stereotyping, prejudice and discrimination towards people on the basis of their age [8]. Indeed, research and policies on digital technology use in later life are often based on the perception that older age and ageing is a "problem", constituting a major burden to healthcare systems and societies [9,10]. Technology, on the other hand, is commonly depicted as the solution to solving so-called "problems of ageing" [11].

¹Defined as technological devices, services or platforms that use, collect, and often process data and are connected to the internet, other devices, or apps [23], such as smartphones, healthcare apps, online banking and shopping, etc.

Age-stereotypes related to older persons' use of digital technology are not only reflected in policy and research but also become obvious in the design of digital technology as well as in the individual's choice to adopt a digital technology. Older persons are often stereotypically portrayed as technophobic, less capable and unwilling to adopt new digital technology [12,13]. Oversimplified binary categorizations into "user" and "non-user" or "adopter" and "late-adopter" are widespread and undermine the heterogeneity of older peoples' abilities and motivations to use digital technology. Moreover, older age with regard to digital technology is often associated with physical and cognitive decline and low technological competences and desires [14]. Consequently, the majority of the "gerontechnology" and "age-tech" market focus on care and healthcare-related technologies, a focus that is often policy driven. While many older individuals indeed express high willingness to use healthcare technologies if needed [15,16], older persons also have motivations for a wider range of digital technologies that can meet additional needs. Other types of digital technologies for leisure, personal development, socializing, mobility, etc. seem to be shortcoming [17].

Countering the stereotypes

The definitions of "old age" in relation to digital technology often varies from age 50+ to 75+. This grouping often does injustice to the fact, that older persons are a highly diverse population group. People have different opportunities and resources to access and profit from contemporary digital advancements. Against widespread stereotypes, which devalue older individuals as less able and unwilling to learn and engage in new digital technology [12,13], evidence proves the opposite. A great proportion of older persons report high willingness to learn to use new digital technology and consider many digital technologies as relevant to their lives [18,19]. This also becomes evident in a recent report by the American Association of Retired Persons (AARP) [20], demonstrating that digital technology use (e.g. smartphones, tablets, smart home technologies) in adults aged 50 and above has consistently increased since 2014, and for many devices, adoption is nearly comparable to younger adults. For instance, the majority of older persons uses smartphones (86% of those aged 50-59, 81% of those aged 60-69 and 62% of those aged 70 and older). In fact, the 'baby boomer' generation is currently the most rapidly growing group of Internet adopters [21]. Communication via video-call or online services are widely accepted and desired means accompanying older persons in their everyday lives.



The various levels of ageism in the context of digital technology

While acknowledging that various factors might hinder the use and adoption of digital technology, this policy brief calls to address the under-looked impact of ageism. Ageism in the context of digital technology may occur on the macro-, meso- and micro-level [22], while these levels also interact and influence each other [23]:

- 1. The macro-level: Design & policy** – How stereotypes and exclusion of older adults (discrimination) shape the design of digital technology products and policies, and consequently our daily environment.
- 2. The meso-level: Social and organizational environment** – How other people's stereotypes (family, friends, service providers, healthcare professionals, etc.) influence the use of digital technology by older persons.
- 3. The micro-level: The individual** – How age-stereotypes are internalized over the life course, and impact how people view their ability to use digital technology as they age.

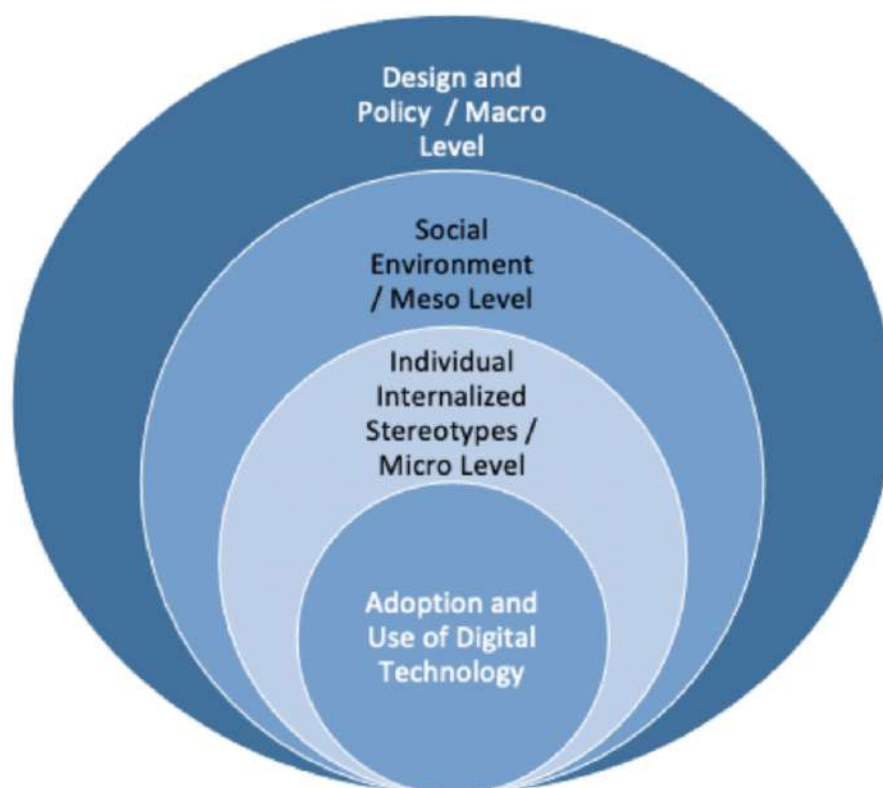


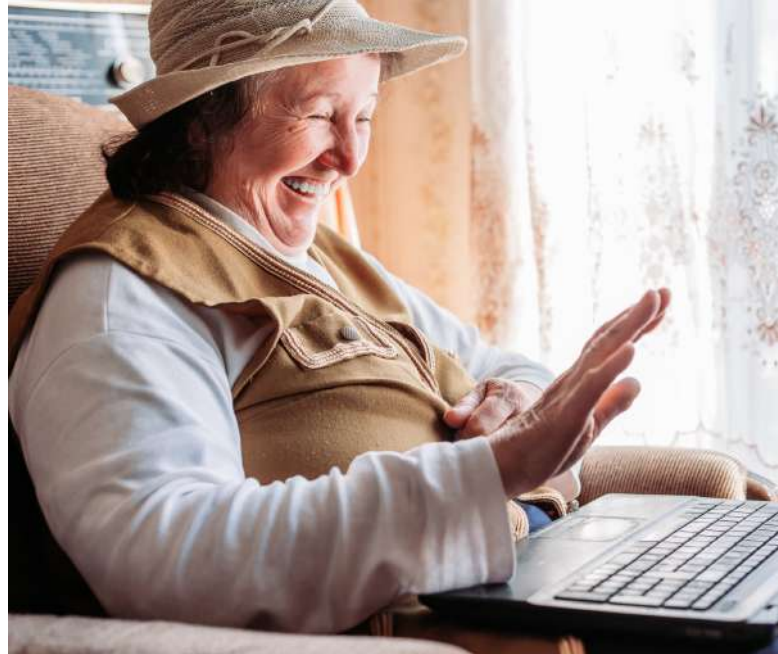
Figure 1: Three levels of ageism in the context of adoption and use of digital technology.

POLICY IMPLICATIONS

In the following part of this policy brief, we provide further evidence and examples of how digital technology related ageism operates on these three levels. Based on this evidence, we suggest implications and recommendations to tackle ageism in the context of digital technology and improve policymaking that intends to close the age-based digital divide.

The macro-level (policy, research and design)

Older age is often automatically associated with cognitive, physical and social decline [14]. This is reflected in research, policy and digital technology design processes, that commonly depict older people as a deserving target-group for technological interventions while presenting technology as the solution to “problems of aging” [23]. Yet, this major focus on health care digital technology as well as ageist digital technology designs, for instance, the so-called “pensioner phone” can become reason for non-use, as they might not meet peoples’ actual needs. More importantly, such digital technologies are often viewed as stigmatizing and are thus avoided. This mismatch between what older persons want and what is designed may be attributed to the common exclusion of older persons from digital technology design processes [24]. While inclusive and co-design approaches have recently gained popularity, older end-users’ needs often remain unknown and involvement of older individuals in the design process often takes place only in the final phases of evaluation of the design and marketing.



Mere involvement of older persons in final stages of the design process, only to legitimize the product rather than to truly seek for the end-user’s feedback, can be viewed as a form of exclusion, that may hamper the adoption of (potentially useful) products [25].

The meso-level (social environment)

Ageism as occurring in the context of the social and organizational environment (family members, healthcare, peers or work colleagues) can determine experiences of failure and success with regard to digital technology adoption [7,26]. Younger generations’ negative attitudes about older persons’ abilities to use digital technology can hamper successful digital technology learning and further increase the age-based digital divide [27]. For example, in 2019, the meme “OK Boomer” was widespread among teenagers and younger adults. It involved stereotypes ascribed to the baby boomer generation and portrayed older persons as “digitally inferior” and resistant to technological changes [27]. This is critical, as intergenerational contact and learning are crucial to enhance older persons’ digital technology adoption [28,29].

The social environment also involves healthcare workers or other services that require social interaction. In the healthcare context, ageism is known to influence diagnosis, prognosis and treatment [30]. A recent study found that healthcare professionals hold highly negative attitudes towards older persons' abilities to use healthcare digital technology [31]. Such negative attitudes towards older persons' abilities to use digital technology could potentially lead to discriminatory practice, such as not offering technology-based treatment or assistive technologies to older patients based on the ageist belief that they won't be able to use it. Notably, healthcare professionals' biases might influence the design of future healthcare technologies as well.

The micro-level

Negative self-perceptions of ageing or internalized age stereotypes can be activated through disadvantaging or ageist policies, designs, discourses or social interactions. For instance, ageist designs of technologies or digital technology usually advertised for the young, can activate negative age-stereotypes and make ageing individuals feel older or less capable [32,33]. Ageist environments have the power to affect older persons' willingness to engage but also the ability to succeed in performing more complex tasks, like using digital technology (e.g., online banking, e-shopping). If older individuals themselves have internalized the belief that older people cannot learn anymore or are less capable of using digital technology, they may be at risk of actually having greater problems in adopting new digital technology [26]. Alarming, the less digital technologies are used, the more prone older individuals are to negatively perceive their own aging related to personal competence beliefs [34]. In contrast, participation in cognitively demanding activities, such as digital technology, positively affects physical and cognitive functioning [12], increases self-efficacy, self- image, self-esteem, social coherence and autonomy in later life [14].



POLICY RECOMMENDATIONS

01

Tackling digital technology related ageism through awareness-raising and training:

Ageism can impact the use, adoption and design of technology products and services. Greater awareness to this problem needs to be raised among policymakers, designers, healthcare professionals, and the general public. Launching campaigns and adding content on the effects of ageism in digital technology to existing and new education programs and anti-discrimination training is recommended. Ageism in the context of digital technology can also be tackled by fostering intergenerational contact and learning [35]. Digital literacy course conductors should receive training on inclusive and ageism-free teaching. Tailored intergenerational programs and interventions addressing the heterogeneity of older persons, facts on ageing, experiential learning and positive exposure can effectively deconstruct age stereotypes in the context of technology and contribute to the creation of a more positive narrative about later life digital technology usage [36, 37]. More so, capacity trainings for professionals (e.g. healthcare), targeting age stereotypes with regard to digital technology may ensure more equal digital technology based treatment and better health outcomes [31].

02

Aiming for a partnership with older persons in the design and research process:

In order to ensure development of services and technologies that older persons need, want and can use, it is highly recommended to meaningfully involve older end-users throughout all stages of research and design processes. Starting with the assessments of users' needs, and not only in final stages of marketing (e.g., evaluation). The involvement of older persons should be recognized as a partnership, mutually beneficial to all stakeholders, where older persons are viewed as experienced experts and advisors [25].

03

Empowering individuals of all ages in accessing and using digital technology:

In order to enhance digital technology use and decrease negative effects of internalized ageism, digital literacy trainings in ageism-free and intergenerational learning environments can ensure greater access to needed digital technology. Ensuring access to lifelong learning, including tailored digital literacy interventions for older persons, can empower young and old individuals in becoming more digitally engaged and holding more positive attitudes towards their own ageing [26, 28, 37].

04

Fostering inclusion of older persons in digital technology related policy contexts:

While the definitions of “old age” in research and policy vary from 50+ to 75+, the heterogeneity of older persons in relation to digital technology should be acknowledged both in research and policy discourses in order to develop effective interventions that aim at closing the digital divide. This brief stresses the need for policy to reflect the diversity of older persons and to include older persons from various backgrounds in planning and decision making. More so, it is important to acknowledge the diversity of older persons and involve potential end-users, in accordance with the type of digital technology that is being designed.



CONCLUSIONS

This policy brief emphasizes the idea that ageism can be a barrier to digital technology use and adoption. The implications and manifestations are present in the very idea of how and which digital technologies are developed and promoted by policies (macro level); ageist expressions and practices of organizations, professionals, families and caregivers (meso level); and finally, stereotypes that are internalized over the life course (micro level).

Subsequently, these different levels interact and influence each other, meaning that the solutions might lay in tackling each level individually but should also be viewed in a holistic manner.

In line with the concerns about use and adoption of digital technology among older persons, and the vast development of digital technology, this report calls to stop considering chronological age by itself as a barrier, but rather to aim for policies and interventions that can eliminate stereotypes, prejudice and discrimination based on age.

A paradigm shift throughout these different levels is therefore needed, acknowledging the diverse needs and interests with regard to the use of digital technology among older people. Individuals of all ages should have a “say” within the design of digital technology regarding style, type and user-friendliness. Change is also needed in the education of organizations and professionals in society focusing on how older persons should be treated as individuals with the ability to evolve, learn and use digital technology.

About the authors:

Hanna Köttl² and Ittay Mannheim^{3 4} are both PhD researchers in the Marie Skłodowska-Curie research and innovation program called [EuroAgeism](#). Hanna Köttl’s research examines the potential association between internalized ageism and everyday ICT use in later life and also explores environmental factors that contribute to the internalization of negative age stereotypes over the life course. Ittay Mannheim’s research focuses on the role of ageism as an influencing factor on the use and design of digital technology. More specifically, his research explores how ageism can be a latent factor influencing how older adults are involved in the design process, and how age-stereotypes and stereotype activation can influence attitudes towards the abilities of older people to use digital technology.

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